

INTEGRATING EXISTING SIMULATION COMPONENTS INTO A COHESIVE SIMULATION SYSTEM

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ABSTRACT

A tradition of leveraging the re-use of components to help manage costs has evolved in the development of complex system. This tradition continues on in the Joint Polar Satellite System (JPSS) Program with the cloning of the Suomi National Polar-orbiting Partnership (NPP) satellite for the JPSS-1 mission, including the instrument complement. One benefit of re-use on a mission is the availability of existing simulation assets from the systems that were previously built. An issue arises in the continual shift of technology over a long mission, or multi-mission, lifecycle. As the missions mature, the requirements for the observatory simulations evolve. The challenge in this environment becomes re-using the existing components in that ever-changing landscape. To meet this challenge, the system must: establish an operational architecture that minimizes impacts on the implementation of individual components, consolidate the satisfaction of new high-impact requirements into system-level infrastructure, and build in a long-term view of system adaptation that spans the full lifecycle of the simulation system. The Flight Vehicle Test Suite (FVTS) within the JPSS Program is defining and executing this approach to ensure a robust simulation capability for the JPSS multi-mission environment.